

# Ohio Agricultural Experiment Station.

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### TREATMENT OF CO-OPERATIVE FORESTRY PLOTS.

Since the work of the Station is to learn by experimentation the best methods, the advice given from time to time for the treatment of forestry plots must vary according to the results thus far obtained.

It was advised at the out-set to cut the tops of young forest trees back before planting. This was not insisted upon, however, hence the practice was not generally followed, nor was it advised that the tops be cut off close to the ground. The tops of many of the trees have been cut off before sending out from the Station, but not all have been so treated, nor has it been practicable to remove as much of the tops as should be done for the best results.

Experience thus far has shown that if the tops are cut off before planting, an inch or two above the point where the top and root join, the result is better than if the cut is made several inches higher. When the cut is made low down but one sprout usually starts and a clean, vigorous growth is assured. This gives a straight stem the first year and obviates, in a great measure, the necessity of cutting off the tree at the ground at the beginning of the second season. This treatment is advised for all young forest trees except evergreens. In case the trees are not cut off before planting they are apt to make a crooked growth the first year, and then there arises the necessity of cutting off at the ground to secure a straight growth. In order to determine the best age for cutting back, the Station has advised that some trees be cut off the first spring after planting and some the year following.

It has been found that Locust trees do not need to be cut off at the beginning of the second season. In some instances there may be two sprouts or a fork, in which case all that needs to be done is to remove one branch. The pruning off of small side branches is not necessary as they will soon die and drop off.



Locust trees 4 years old. No pruning has been done in this part of the plantation. Note forked trunks.

If Locust trees are cut off at the ground after the first year, sprouts are likely to come from the roots at some distance from the trees, hence, in general, the best plan to pursue with Locust trees is to start them right the first season and then not cut back again. For the reason that the side branches of the Catalpa do not fall off and must be pruned away it has been thought advisable to delay cutting off the trees until a strong root system has been secured, or when the trees are two or three years old. A straight, tall stem, often ten feet high, can thus be secured. As there are no side branches on the tall stem to be cut off some pruning is thus saved.

In practice, however, this plan has not been satisfactory. The shoot which starts from a two or three year old root is very strong but tender, and when the mass of heavy foliage is wet it becomes very heavy. The result has been that many trees have been injured, and in some cases ruined, by the breaking off of the sprouts by the wind, when the foliage is wet. This has not occurred in every case, but far too often to warrant advising the cutting off of two and three year old trees. Sometimes, on rich soil, the sprouts will be broken off by the wind if the trees are cut back after one year's growth, but the danger is much less than in the case of older trees.

At present the best plan seems to be to keep the trees growing straight from the start, and cut off at the ground only in case of necessity. This necessity may often occur, but the trees which are not cut off will protect from the wind those which are. There ought to be no hesitation, where a tree is very crooked, to cut it off close to the ground, but if only slightly crooked it will straighten very perceptibly before it reaches maturity.

The terminal bud of Catalpa trees is often injured by cold and by an insect as well. This may necessitate a little care in starting a new terminal shoot. All that needs to be done is to see that one shoot is given the chance to take the lead. This is done by breaking off all but one side shoot or by pinching the ends off those which are not to be allowed to grow.

In case Catalpa trees have been left from one to three years after planting with no pruning whatever, there are usually many large side branches near the ground and some very crooked stems. The latter can, in most cases, be remedied only by cutting the tree off near the ground. It is often a problem what to do regarding the removal of side branches. Generally it is better to remove most, but not all of the side branches, as if they are all cut away at one time and nothing but a single stem left, the body does not develop sufficiently to hold the heavy top upright, and a crooked stem results

A good and safe plan is to prune off some of the larger limbs each year, leaving the smaller ones to be taken off subsequently. In all cases where severe injury has been caused by mice or rabbits gnawing the trees the only remedy is to cut off at the ground, regardless of the age of the trees.

Mulberry and Osage Orange may be treated in the same manner as Catalpa trees. When trees are cut off at the ground, late winter or early spring is the proper time. Side branches may be removed late in the spring or early in the summer with safety.

It has been found that trees grow much faster when cultivated than when in sod, and that potatoes are a better crop than corn to grow among them. Trees in sod not only grow very slowly, but are subject to the attacks of mice. Clean cultivation the first season is not difficult if there is simply room enough between the trees to work with a horse, but more room is needed if cultivation is to be continued more than one year. Cultivation of Locust trees is of doubtful utility for more than one season, however, because if the roots are lacerated sprouts will spring up. If any cultivation at all is given Locust trees after the first season it should be very shallow. Cultivation for two or even three seasons promotes the growth of all kinds of trees and is very desirable for Catalpa, Mulberry and Osage Orange.

A plow cannot well be used to break up the soil the second season, but the disc and spring tooth harrow are suitable tools if the rows are far enough apart to admit of their use. Mulching with straw is a good practice but adds to the danger from mice attacks. The same is true of clover or any cover crop. Banking the trees with a few shovels full of earth each fall lessens the risk of the trees being knawed by mice.